Progress Energy

Serial: RNP-RA/04-0127

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United States Nuclear Regulatory Commission
ATTN: Document Control Desk
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Rockville, Maryland 20852

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

RESPONSE TO NRC GENERIC LETTER 2004-01,
"REQUIREMENTS FOR STEAM GENERATOR TUBE INSPECTIONS"

Ladies and Gentlemen:

On August 30, 2004, NRC Generic Letter 2004-01, "Requirements for Steam Generator Tube Inspections," was issued requesting that licensees provide a response within 60 days. Progress Energy Carolinas, Inc. (PEC), also known as Carolina Power and Light Company, is providing the response for H. B. Robinson Steam Electric Plant, Unit No. 2, in Attachment II to this letter.

Attachment I provides an Affirmation in accordance with the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f).

If you have any questions concerning this matter, please contact Mr. C. T. Baucom at (843) 857-1253.

Sincerely,

Jan P. Lucas
Manager – Support Services – Nuclear

RAC/rac

Attachments:

I. Affirmation
II. Response to NRC Generic Letter 2004-01, "Requirements for Steam Generator Tube Inspections"

c: Dr. W. D. Travers, NRC, Region II
Mr. C. P. Patel, NRC, NRR
NRC Resident Inspector

Progress Energy Carolinas, Inc.
Robinson Nuclear Plant
3581 West Entrance Road
Hartsville, SC 29550

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AFFIRMATION

The information contained in letter RNP-RA/04-0127 is true and correct to the best of my information, knowledge, and belief; and the sources of my information are officers, employees, contractors, and agents of Progress Energy Carolinas, Inc., also known as Carolina Power and Light Company. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 10-28-2004

William G. Noll
Director – Site Operations
HBRSEP, Unit No. 2

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO NRC GENERIC LETTER 2004-01, "REQUIREMENTS FOR STEAM GENERATOR TUBE INSPECTIONS"

NRC Question 1

Addressees should provide a description of the Steam Generator (SG) tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the Technical Specifications (TS) in conjunction with Criteria IX and XI of 10 CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.

Response 1

In Generic Letter 2004-01, the NRC provides the position that "licensees are required under existing requirements (TS in conjunction with 10 CFR Part 50, Appendix B) to employ inspection techniques capable of detecting all flaw types which may be present at locations which are required to be inspected pursuant to the TS." SG tube inspections performed at H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, are consistent with this NRC position.

HBRSEP, Unit No. 2, has three Westinghouse SGs. The tubing material in each of the SGs is Inconel Alloy 600 thermally treated. In addition, the first eight rows had the U-bend area stress relieved after bending. The tubes are fully hydraulically expanded into the tubesheet.

The following are the details from the last SG tube inspections performed during Refueling Outage 22, which occurred from April 19, 2004 through May 28, 2004:

The eddy current examinations were performed utilizing a combination of Zetec bobbin coil probes, Plus Point[1] coil probes, and pancake coil probes. The site-specific eddy current detection and sizing techniques used to perform the examinations are qualified techniques in accordance with EPRI Report 1003138, "Pressurized Water Reactor Steam Generator Examination Guidelines," Revision 6, dated October 2002.

Bobbin coil examinations were performed in all three SGs. SGs A and C had approximately 50% of the tubes tested and SG B had 100% of the open tubes tested.

[1] A Plus Point coil was included in every rotating coil (RC) examination performed. Typically, these examinations, such as at the top-of-tubesheet and U-bends, are performed with a Plus Point/pancake combination probe.

Rotating pancake/Plus Point (RPC) examinations were performed in SGs A, B, and C on a selected population of the inlet (hot leg) side historical Non-Quantifiable Signals (NQS), a selected population of previous dents (hot leg/cold leg), and on suspect bobbin indications (diagnostics). RPC examinations were also performed on approximately 50% of the U-bend region of row 1 and 2 tubes utilizing the Plus Point coil.

SGs A, B, and C had approximately 50% of the tubes at the hot leg top-of-tubesheet transition (-2" to +4") tested with RPC probes. Also, SG B had all peripheral tubes tested (one tube deep) on the cold leg with pancake/Plus Point coils at the top-of-tubesheet location.

The base inspection and additional inspection scopes for each SG are provided in the following tables:

Steam Generator A:

Test Plans	Number of Tubes	Comments
Base Plan		
Bobbin		
Cold Leg R7-45	1422	
Cold Leg R3-6	191	
* Hot Leg/Cold Leg R1-2	276	
Total Tubes	1751	
RPC		
Cold Leg/Hot Leg	10	Dents
Cold Leg/Hot Leg	1	Non-expanded tubesheet
Cold Leg/Hot Leg	43	Wear % indications
Cold Leg/Hot Leg	15	Previous NQS sample
Hot Leg Row 1-2 U-Bend	90	
Hot Leg	1751	Top-of-tubesheet (TTS) (-2" to +4")
Hot Leg	6	Bounding previous Possible Loose Part (PLP)
Additional Scope		
Cold Leg/Hot Leg	16	PLP, Loose Part Signal (LPS), Loose Part Indication (LPI), Bounding Plus Point
Cold Leg/Hot Leg	38	Wear scar, sizing Plus Point
Hot Leg	27	Diagnostic
Cold Leg	13	Diagnostic
Hot Leg/Cold Leg	1	U-Bend diagnostic Plus Point

* Row 1 and 2 tubes are the same tubes tested from the hot and cold legs

Steam Generator B:

Test Plans	Number of Tubes	Comments
Base Plan		
Bobbin		
Cold Leg R7-45	2659	
Cold Leg R3-6	368	
* Cold Leg/Hot Leg R1-2	366	
Total Tubes	3210	
RPC		
Cold Leg	269	TTS (-2" to +4")
Cold Leg/Hot Leg	27	Dents
Hot Leg/Cold Leg	12	Previous NQS sample
Hot Leg/Cold Leg	21	Wear % indications
Cold Leg	6	Bounding previous PLP
Hot Leg TTS	1761	TTS (-2" to +4")
Hot Leg Row 1-2 U-Bend	91	
Additional Scope		
Cold Leg/Hot Leg	225	PLP, LPS, LPI, Bounding Plus Point
Cold Leg/Hot Leg	6	Wear scar, sizing Plus Point
Hot Leg	25	Diagnostic
Cold Leg	28	Diagnostic
Hot Leg/Cold Leg	1	U-Bend diagnostic Plus Point

* Row 1 and 2 tubes are the same tubes tested from the hot and cold legs

Steam Generator C:

Test Plans	Number of Tubes	Comments
Base Plan		
Bobbin		
Cold Leg R 7-45	1434	
Cold Leg R3-6	193	
* Hot Leg/Cold Leg R1-2	276	
Total Tubes	1765	
RPC		
Cold Leg/Hot Leg	19	Dents
Cold Leg/Hot Leg	20	Previous NQS sample
Hot Leg/Cold Leg	8	Wear % indications
Hot Leg/Cold Leg R1-2 U Bend	90	
Hot Leg	1758	TTS (-2" to +4")
Additional Scope		
Hot Leg/Cold Leg	24	PLP, LPS, LPI, Bounding Plus Point
Hot Leg/Cold Leg	9	Wear scar, sizing Plus Point
Hot Leg/Cold Leg	14	Diagnostic
Hot Leg/Cold Leg	3	Bobbin sizing anti-vibration bar wear

* Row 1 and 2 tubes are the same tubes tested from the hot and cold legs

Progress Energy Carolinas, Inc. (PEC), uses tube inspection methods that are capable of detecting flaw types that may be present. Prior to each inspection, a degradation assessment, which includes operating experience, is performed to identify degradation mechanisms that may be present. Additionally, a technique validation assessment is performed to verify that the eddy current techniques are capable of detecting those flaw types identified in the degradation assessment.

NRC Question 2

If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective action, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tubesheet and where the extent of the inspection in the tubesheet region is limited.

Response 2

As noted in Response 1, SG tube inspections performed at HBRSEP, Unit No. 2, are consistent with the NRC's position. Therefore, this question does not apply.

NRC Question 3

For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS where flaws have the potential to exist and inspection techniques capable of detecting these flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of tubesheet, even if these cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10 CFR 50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, the licensee should determine whether a license amendment is necessary pursuant to that regulation.

Response 3

As noted in Response 1, SG tube inspections performed at HBRSEP, Unit No. 2, are consistent with the NRC's position. Therefore, this question does not apply.